Pavement Purpose

- Facilitate in the safe and convenient movement of fast moving vehicles
- Support and distribute the wheel load
- Permitting settlement only within permissible limits
- Provide smoothness.
- Drainage

Desirable Properties of Pavement

- Structurally sound to withstand imposed stress
- Thick enough to distribute load safely
- Impervious surface to facilitate in drainage
- Long life and low maintenance cost
- Good riding quality to ensure traffic safety.
- Adequate rough to prevent skidding of aircraft

Type of Pavements:

- Flexible Pavement
  - Use of bituminous materials
  - Called "flexible" since the total pavement structure bends (or flexes) to accommodate traffic loads

- Rigid Pavement
  - Portland cement concrete (PCC) pavements
  - Called “rigid” since PCC’s high modulus of elasticity does not allow them to flex appreciably

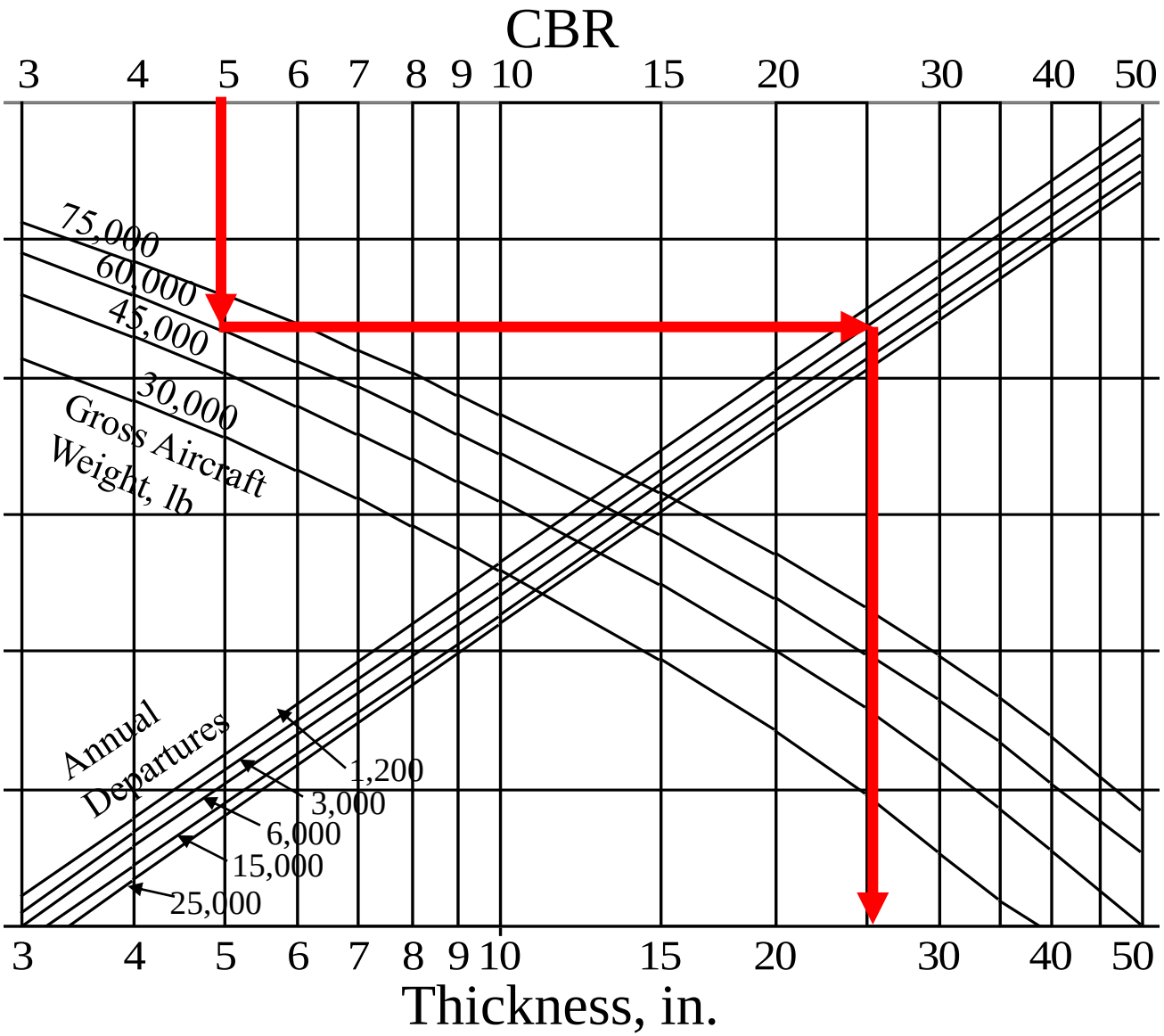
Design step in CBR Method:

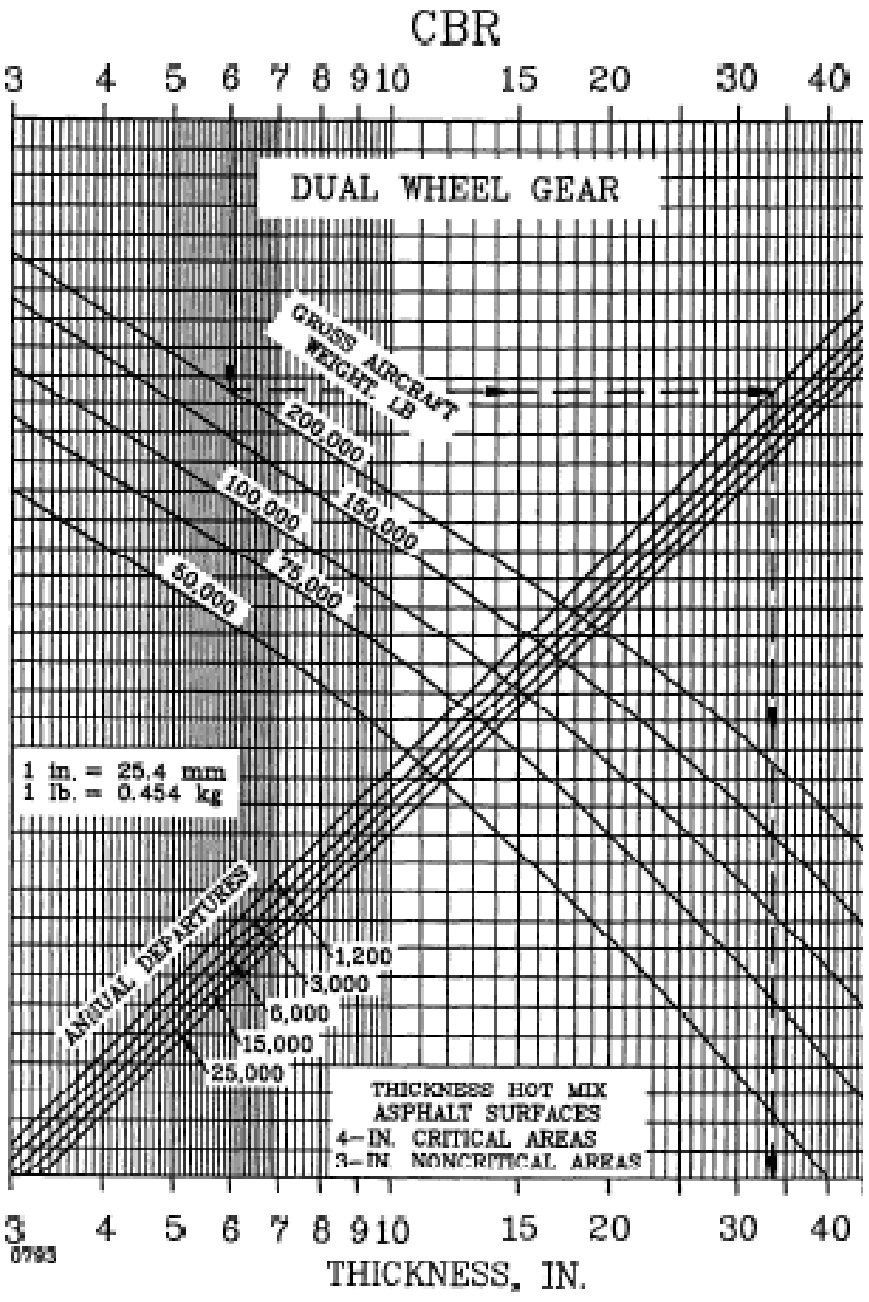
- Determine the design aircraft
- Using the landing gear configuration select the appropriate pavement design chart.
- Determine the total thickness of pavement, using aircraft weight, annual departures and CBR value.
- With an assumed CBR of 20 for sub base or provided CBR value , determine the pavement thickness above sub base
- Calculate the thickness of the sub base as the difference of the two thickness calculated
- Calculate the thickness of base by subtracting the “minimum surface thickness.

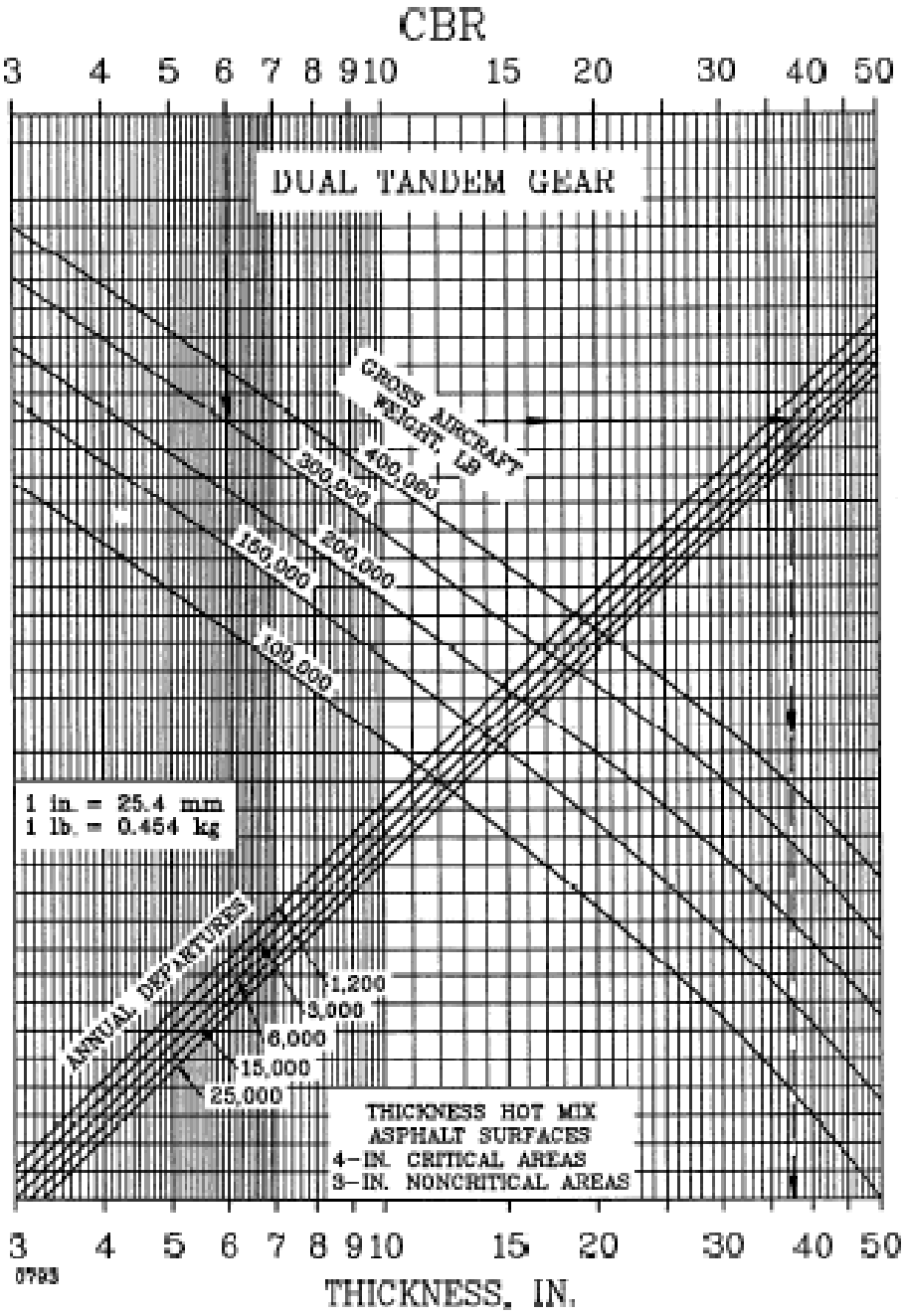
CBR Design Procedure - Sample Design Curve

Unique curve required for each gear type

Ideally need a new curve for each gear due to wheel spacing and tire pressure




CBR
3 4 5 6 7 8 9 10 15 20 30 40
DUAL WHEEL GEAR
GROSS AIRCRAFT WEIGHT, LB
200,000
100,000
150,000
75,000
50,000
1 in. = 25.4 mm
1 lb. = 0.454 kg
ANNUAL DEPARTURES
1,200
3,000
6,000
15,000
25,000
THICKNESS HOT MIX ASPHALT SURFACES
4-IN. CRITICAL AREAS
3-IN. NONCRITICAL AREAS
0793
THICKNESS, IN.


CBR
3 4 5 6 7 8 9 10 15 20 30 40 50
DUAL TANDEM GEAR
GROSS AIRCRAFT WEIGHT, LB
400,000
300,000
250,000
150,000
100,000
1 in. = 25.4 mm
1 lb. = 0.454 kg
ANNUAL DEPARTURES
1,200
3,000
6,000
15,000
25,000
THICKNESS HOT MIX ASPHALT SURFACES
4-IN. CRITICAL AREAS
3-IN. NONCRITICAL AREAS
0793
THICKNESS, IN.